

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A substrate processing apparatus, comprising:

a first processing chamber capable of being isolated from an external atmosphere, said first processing chamber including a liquid chemical processing part for performing liquid chemical process on substrates by a structure that enables dipping substrates into a liquid chemical stored in liquid chemical baths, and the atmosphere within said first processing chamber being continuously replaced by an inert gas;

a second processing chamber capable of being isolated from an external atmosphere as well as from the atmosphere in said first processing chamber, said second processing chamber including a pure water processing part for performing pure water process on substrates by dipping substrates into pure water stored in rinse baths, and a dry processing part for performing dry process on substrates drawn up from said rinse baths, and the atmosphere within said second processing chamber being continuously replaced by an inert gas, with the dry process being effected by supplying a drying gas which is different from the inert gas;

a first opening provided to an upper portion of said first processing chamber, said first opening allowing substrates to pass therethrough;

a first shutter member for exposing and blocking said first opening;

a second opening provided to an upper portion of said second processing chamber, said second opening allowing substrates to pass therethrough;

a second shutter member for exposing and blocking said second opening;

a third opening provided between said first and second processing chambers, said third opening allowing substrates to pass therethrough;

a third shutter member for exposing and blocking said third opening, said third shutter member being effective in a closed state thereof to isolate the atmosphere within said first processing chamber from the atmosphere within said second processing chamber;

a first transport mechanism for transporting substrates, said first transport mechanism being movable between a position above said first processing chamber and a position above said second processing chamber;

a second transport mechanism for carrying substrates between said first and second processing chambers through said third opening;

a third transport mechanism for carrying substrates between said position above first processing chamber and said liquid chemical processing part through said first opening, said third transport mechanism also transferring substrates between said first and second transport mechanisms; and

a fourth transport mechanism for carrying substrates between said position above said second processing chamber and said pure water processing part through said second opening, said fourth transport mechanism also transferring substrates between said first and second transport mechanisms.

2. (Original) The substrate processing apparatus according to claim 1, wherein said first processing chamber comprises:

a liquid chemical processing chamber including said liquid chemical processing part; and
a transport chamber provided with said third opening, said transport chamber allowing transportation of substrates by said second transport mechanism, and

wherein atmospheres in said liquid chemical processing chamber and said transport chamber can be isolated from each other.

3. (Original) The substrate processing apparatus according to claim 2, wherein said liquid chemical processing part includes a plurality of liquid chemical baths.

4. (Original) The substrate processing apparatus according to claim 3, wherein said liquid chemical processing chamber is divided into a plurality of liquid chemical process units including respective ones of said plurality of liquid chemical baths, and

wherein atmospheres in said plurality of liquid chemical process units can be isolated from each other.

5. (Original) The substrate processing apparatus according to claim 4, further comprising:

an inert gas supply member for supplying an inert gas to said first and second processing chambers; and

an exhaust member through which air is exhausted from said first and second processing chambers.

6. (Currently Amended) A substrate processing apparatus, comprising:
a first processing chamber capable of being isolated from an external atmosphere, said first processing chamber including a liquid chemical processing part for performing liquid chemical process on substrates by a structure that enables dipping substrates into a liquid chemical stored in liquid chemical baths, and the atmosphere within said first processing chamber being continuously replaced by an inert gas;

a second processing chamber capable of being isolated from an external atmosphere as well as from the atmosphere in said first processing chamber, said second processing chamber including a pure water processing part for performing pure water process on substrates by dipping substrates into pure water stored in rinse baths, and a dry processing part for performing dry process on substrates drawn up from said rinse baths, and the atmosphere within said second processing chamber being continuously replaced by an inert gas, with the dry process being effected by supplying a drying gas which is different from the inert gas;

a first opening provided to an upper portion of said first processing chamber, said first opening allowing substrates to pass therethrough;

a first shutter member for exposing and blocking said first opening;

a second opening provided to an upper portion of said second processing chamber, said second opening allowing substrates to pass therethrough;

a second shutter member for exposing and blocking said second opening;

a third opening provided between said first and second processing chambers, said third opening allowing substrates to pass therethrough;

a third shutter member for exposing and blocking said third opening, said third shutter member being effective in a closed state thereof to isolate the atmosphere within said first processing chamber from the atmosphere within said second processing chamber;

a first transport mechanism for transporting substrates, said first transport mechanism being movable between a position above said first processing chamber and a position above said second processing chamber; and

a second transport mechanism for carrying substrates between said position above said first processing chamber, said liquid chemical processing part, said pure water processing part, and said position above said second processing chamber while passing through said first, second and third openings, said second transport mechanism also transferring substrates to and from said first transport mechanism.

7. (Original) The substrate processing apparatus according to claim 6, wherein said first processing chamber comprises:

a liquid chemical processing chamber including said liquid chemical processing part; and
a transport chamber provided with said third opening, said transport chamber allowing transportation of substrates by said second transport mechanism, and

wherein atmospheres in said liquid chemical processing chamber and said transport chamber can be isolated from each other.

8. (Original) The substrate processing apparatus according to claim 7, wherein said liquid chemical processing part includes a plurality of liquid chemical baths.

9. (Original) The substrate processing apparatus according to claim 8, wherein said liquid chemical processing chamber is divided into a plurality of liquid chemical process units including respective ones of said plurality of liquid chemical baths, and

wherein atmospheres in said plurality of liquid chemical process units can be isolated from each other.

10. (Original) The substrate processing apparatus according to claim 9, further comprising:

an inert gas supply member for supplying an inert gas to said first and second processing chambers; and

an exhaust member through which air is exhausted from said first and second processing chambers.

11. (Currently Amended) A substrate processing apparatus, comprising:
a first processing chamber capable of being isolated from an external atmosphere, said first processing chamber including a liquid chemical processing part for performing liquid chemical process on substrates by a structure that enables dipping substrates into a liquid chemical stored in liquid chemical baths, and the atmosphere within said first processing chamber being continuously replaced by an inert gas;

a second processing chamber capable of being isolated from an external atmosphere as well as from the atmosphere in said first processing chamber, said second processing chamber including a pure water processing part for performing pure water process on substrates by dipping substrates into pure water stored in rinse baths, and a dry processing part for performing dry process on substrates drawn up from said rinse baths, and the atmosphere within said second processing chamber being continuously replaced by an inert gas, with the dry process being effected by supplying a drying gas which is different from the inert gas;

a first opening provided to an upper portion of said first processing chamber, said first opening allowing substrates to pass therethrough;

a first shutter member for exposing and blocking said first opening;

a second opening provided to an upper portion of said second processing chamber, said second opening allowing substrates to pass therethrough;

a second shutter member for exposing and blocking said second opening;

a third opening provided between said first and second processing chambers, said third opening allowing substrates to pass therethrough;

a third shutter member for exposing and blocking said third opening, said third shutter member being effective in a closed state thereof to isolate the atmosphere within said first processing chamber from the atmosphere within said second processing chamber;

a first transport mechanism for transporting substrates, said first transport mechanism being movable between said first processing chamber, a position above said first processing chamber, a position above said second processing chamber, and said second processing chamber while passing through said first and second openings; and

a second transport mechanism for carrying substrates between said liquid chemical processing part and said pure water processing part through said third opening, said second transport mechanism also transferring substrates to and from said first transport mechanism.

12. (Original) The substrate processing apparatus according to claim 11, wherein said first processing chamber comprises:

a liquid chemical processing chamber including said liquid chemical processing part; and
a transport chamber provided with said third opening, said transport chamber allowing transportation of substrates by said second transport mechanism, and

wherein atmospheres in said liquid chemical processing chamber and said transport chamber can be isolated from each other.

13. (Original) The substrate processing apparatus according to claim 12, wherein said liquid chemical processing part includes a plurality of liquid chemical baths.

14. (Original) The substrate processing apparatus according to claim 13, wherein said liquid chemical processing chamber is divided into a plurality of liquid chemical process units including respective ones of said plurality of liquid chemical baths, and
wherein atmospheres in said plurality of liquid chemical process units can be isolated from each other.

15. (Original) The substrate processing apparatus according to claim 14, further comprising:

an inert gas supply member for supplying an inert gas to said first and second processing chambers; and

an exhaust member through which air is exhausted from said first and second processing chambers.

16. (Currently Amended) A substrate processing apparatus, comprising:

a first processing chamber capable of being isolated from an external atmosphere, said first processing chamber including a liquid chemical processing part for performing liquid chemical process on substrates by a structure that enables dipping substrates into a liquid chemical stored in liquid chemical baths, and the atmosphere within said first processing chamber being continuously replaced by an inert gas;

a second processing chamber capable of being isolated from an external atmosphere as well as from the atmosphere in said first processing chamber, said second processing chamber including a pure water processing part for performing pure water process on substrates by dipping substrates into pure water stored in rinse baths, and a dry processing part for performing dry process on substrates drawn up from said rinse baths, and the atmosphere within said second processing chamber being continuously replaced by an inert gas, with the dry process being effected by supplying a drying gas which is different from the inert gas;

a first opening provided to an upper portion of said first processing chamber, said first opening allowing substrates to pass therethrough;

a first shutter member for exposing and blocking said first opening;

a second opening provided to an upper portion of said second processing chamber, said second opening allowing substrates to pass therethrough;

a second shutter member for exposing and blocking said second opening;

a third opening provided between said first and second processing chambers, said third opening allowing substrates to pass therethrough;

a third shutter member for exposing and blocking said third opening, said third shutter member being effective in a closed state thereof to isolate the atmosphere within said first processing chamber from the atmosphere within said second processing chamber;

a first transport mechanism for transporting substrates, said first transport mechanism being movable between said liquid chemical processing part, a position above said first processing chamber, a position above said second processing chamber, and said pure water processing part while passing through said first and second openings; and

a second transport mechanism for carrying substrates between said liquid chemical processing part and said pure water processing part through said third opening, said second transport mechanism also transferring substrates to and from said first transport mechanism.

17. (Original) The substrate processing apparatus according to claim 16, wherein said first processing chamber comprises:

a liquid chemical processing chamber including said liquid chemical processing part; and
a transport chamber provided with said third opening, said transport chamber allowing transportation of substrates by said second transport mechanism, and

wherein atmospheres in said liquid chemical processing chamber and said transport chamber can be isolated from each other.

18. (Original) The substrate processing apparatus according to claim 17, wherein said liquid chemical processing part includes a plurality of liquid chemical baths.

19. (Original) The substrate processing apparatus according to claim 18, wherein said liquid chemical processing chamber is divided into a plurality of liquid chemical process units including respective ones of said plurality of liquid chemical baths, and wherein atmospheres in said plurality of liquid chemical process units can be isolated from each other.

20. (Original) The substrate processing apparatus according to claim 19, further comprising:

an inert gas supply member for supplying an inert gas to said first and second processing chambers; and

an exhaust member through which air is exhausted from said first and second processing chambers.

21. (Currently Amended) A substrate processing apparatus, comprising:

a first processing chamber capable of being isolated from an external atmosphere, said first processing chamber including a liquid chemical processing part for performing liquid chemical process on substrates by a structure that enables dipping substrates into a liquid chemical stored in liquid chemical baths, and the atmosphere within said first processing chamber being continuously replaced by an inert gas;

a second processing chamber capable of being isolated from an external atmosphere as well as from the atmosphere in said first processing chamber, said second processing chamber including a pure water processing part for performing pure water process on substrates by dipping substrates into pure water stored in rinse baths, and a dry processing part for performing dry process on substrates drawn up from said rinse baths, and the atmosphere within said second processing chamber being continuously replaced by an inert gas, with the dry process being effected by supplying a drying gas which is different from the inert gas;

a first opening provided to an upper portion of said first processing chamber, said first opening allowing substrates to pass therethrough;

a first shutter member for exposing and blocking said first opening;

a second opening provided to an upper portion of said second processing chamber, said second opening allowing substrates to pass therethrough;

a second shutter member for exposing and blocking said second opening;

a third opening provided between said first and second processing chambers, said third opening allowing substrates to pass therethrough;

a third shutter member for exposing and blocking said third opening, said third shutter member being effective in a closed state thereof to isolate the atmosphere within said processing chamber;

a first transport mechanism for transporting substrates, said first transport mechanism being movable between said first processing chamber, a position above said first processing chamber, a position above said second processing chamber, and said second processing chamber while passing through said first and second openings;

a second transport mechanism for carrying substrates between said first and second processing chambers through said third opening;

a third transport mechanism for carrying substrates in said first processing chamber between a position inside said liquid chemical processing part and a position outside said liquid chemical processing part, said third transport mechanism also transferring substrates between said first and second transport mechanisms; and

a fourth transport mechanism for carrying substrates in said second processing chamber between a position inside said pure water processing part and a position outside said pure water processing part, said fourth transport mechanism also transferring substrates between said first and second transport mechanisms.

22. (Original) The substrate processing apparatus according to claim 21, wherein said first processing chamber comprises:

a liquid chemical processing chamber including said liquid chemical processing part; and a transport chamber provided with said third opening, said transport chamber allowing transportation of substrates by said second transport mechanism, and

wherein atmospheres in said liquid chemical processing chamber and said transport chamber can be isolated from each other.

23. (Original) The substrate processing apparatus according to claim 22, wherein said liquid chemical processing part includes a plurality of liquid chemical baths.

24. (Original) The substrate processing apparatus according to claim 23, wherein said liquid chemical processing chamber is divided into a plurality of liquid chemical process units including respective ones of said plurality of liquid chemical baths, and wherein atmospheres in said plurality of liquid chemical process units can be isolated from each other.

25. (Original) The substrate processing apparatus according to claim 24, further comprising:

an inert gas supply member for supplying an inert gas to said first and second processing chambers; and

an exhaust member through which air is exhausted from said first and second processing chambers.

26. (Currently Amended) A substrate processing apparatus, comprising:
a first processing chamber capable of being isolated from an external atmosphere, said first processing chamber including a liquid chemical processing part for performing liquid chemical process on substrates by a structure that enables dipping substrates into a liquid chemical stored in liquid chemical baths, and the atmosphere within said first processing chamber being continuously replaced by an inert gas;

a second processing chamber capable of being isolated from an external atmosphere as well as from the atmosphere in said first processing chamber, said second processing chamber including a pure water processing part for performing pure water process on substrates by dipping substrates into pure water stored in rinse baths, and a dry processing part for performing dry process on substrates drawn up from said rinse baths, and the atmosphere within said second processing chamber being continuously replaced by an inert gas;

a first opening provided to an upper portion of said first processing chamber, said first opening allowing substrates to pass therethrough;

a first shutter member for exposing and blocking said first opening;

a second opening provided to an upper portion of said second processing chamber, said second opening allowing substrates to pass therethrough;

a second shutter member for exposing and blocking said second opening;

a third opening provided between said first and second processing chambers, said third opening allowing substrates to pass therethrough;

a third shutter member for exposing and blocking said third opening, said third shutter member being effective in a closed state thereof to isolate the atmosphere within said first processing chamber from the atmosphere within said second processing chamber;

a first transport mechanism for transporting substrates, said first transport mechanism being movable between said liquid chemical processing part, a position above said first processing chamber, a position above said second processing chamber, and said pure water processing part while passing through said first and second openings;

a second transport mechanism for carrying substrates between said first and second processing chambers through said third opening;

a third transport mechanism for carrying substrates in said first processing chamber between a position inside said liquid chemical processing part and a position outside said liquid chemical processing part, said third transport mechanism also transferring substrates between said first and second transport mechanisms; and

a fourth transport mechanism for carrying substrates in said second processing chamber between a position inside said pure water processing part and a position outside said pure water processing part, said fourth transport mechanism also transferring substrates between said first and second transport mechanisms.

27. (Original) The substrate processing apparatus according to claim 26, wherein said first processing chamber comprises:

a liquid chemical processing chamber including said liquid chemical processing part; and

a transport chamber provided with said third opening, said transport chamber allowing transportation of substrates by said second transport mechanism, and

wherein atmospheres in said liquid chemical processing chamber and said transport chamber can be isolated from each other.

28. (Original) The substrate processing apparatus according to claim 27, wherein said liquid chemical processing part includes a plurality of liquid chemical baths.

29. (Original) The substrate processing apparatus according to claim 28, wherein said liquid chemical processing chamber is divided into a plurality of liquid chemical process units including respective ones of said plurality of liquid chemical baths, and wherein atmospheres in said plurality of liquid chemical process units can be isolated from each other.

30. (Original) The substrate processing apparatus according to claim 29, further comprising:

an inert gas supply member for supplying an inert gas to said first and second processing chambers; and

an exhaust member through which air is exhausted from said first and second processing chambers.